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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,963	06/21/2005	Menachem Rubinstein	057878-16	3232

7590
David S. Resnick
Nixon Peabody LLP
100 Summer Street
Boston, MA 02110

08/06/2009

EXAMINER

MARVICH, MARIA

ART UNIT	PAPER NUMBER
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1633

MAIL DATE	DELIVERY MODE
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08/06/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,963	Applicant(s) RUBINSTEIN ET AL.	
	Examiner MARIA B. MARVICH	Art Unit 1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-15,17-19 and 34-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2 and 35-49 is/are rejected.
- 7) ☒ Claim(s) 1, 5-15, 17-19 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/26/09 has been entered.

Claims 1, 2, 5-15, 17-19 and 34-50 are pending in the application.

Applicants' amendments to the specification are sufficient to overcome the objections.

Claim Objections

Applicants' amendment is sufficient to overcome the claim objections set forth in the office action mailed 1/21/09. **These are new objections. Dependent claims are included on the 326 as objected to as they fail to overcome the deficiencies set forth below.**

Claims 1, 2, 6, 7, 11, 12, 14, 15, 17-19, 34, 38 and 42-50 are objected to because of the following informalities: Upon further consideration, the phrase in claim 1 "wherein said DNA sequence comprises at the 3' end one to 51 nucleotides of the 5' end of SEQ ID NO:5" should be amended for further clarification to --operably linked at the 3' end of the promoter to SEQ ID NO:5--. SEQ ID NO:5 are 51 nucleotides long and therefore it is inherent that 1-51 are linked to the isolated DNA sequences. As well, recitation in subsequent claims of said isolated DNA sequence can be considered to omit the inclusion of SEQ ID NO:5 by reciting that the isolated DNA sequence is separate i.e. attached to SEQ ID NO:5. For example, in claim 7, the recitation that a gene is operably linked to the promoter or the isolated DNA sequence can lack SEQ ID

NO:5. If the gene is amended to recite it is operably linked to the isolated DNA sequence.

Similar amendment to claims 2, 34, 38 and 50 is required.

As well in claim 2, the final phrase “in a silencer element present in SEQ ID NO:3” should for accuracy be amended to --in the silencer element of SEQ ID NO:3--. There is one silencer region in SEQ ID NO:1 and proper antecedent basis is established by using “the” as opposed to “a”. Similarly, claim 50 should be amended.

In claims 11, 18, 42 and 48, articles are required prior to each of the items listed in the Markush group.

In claim 12, the article “a” prior to “DNA sequence” should be amended to --the--. It is proper when referring to limitations previously recited to use the article “the”. As well, “a vector” should be amended to --the vector--. Claim 14 and 15 should be amended to recite --The isolated host cell--. In claim 17, the phrase “a DNA sequence” should be amended to --the DNA sequence --. As well in claim 17, more properly the phrase “the virus genome” should be --the virus genomic DNA--. Similar amendment to claims 43-47 are required.

In claims 19 and 49 should be amended for more direct antecedent basis, the phrase “the portion of the virus genome belongs to an adeno-associated virus” should be --the virus is adeno-associated virus--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 36-40 and 42-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Novick et al (see 6,605,280 wherein the corresponding application is WO 9909063 which establishes the 102(b) date. **This is a new rejection.**

Novick et al teach a sequence comprising SEQ ID NO:3 (see nucleotides 5448 to 568 of SEQ ID NO:5) with instant SEQ ID NO:5 at the 3' end (see nucleotides 570-620 of SEQ ID NO:5). These sequences are also found at 182-303 and 304-354 in SEQ ID NO:9. Furthermore, the sequences encode IL-18BP as recited in claim 38-39. The protein can be fused to a heterologous protein such as an immunoglobulin which encompasses claim 40 and 42 (see e.g. bridging ¶ col 12-13). Vectors i.e. aav and cells i.e. CHO are taught (see e.g. col 14, line 4-56 and col 15, line 30) as recited claims 43-47 and 49. As well, the sequences include the first introns of IL-18bp as recited in claim 36 and 37.

Claims 2 and 35-49 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Novick et al (see 6,605,280 wherein the corresponding application is WO 9909063 which establishes the 102(b) date. **This is a new rejection.**

For reasons above the claims are anticipated by Novick et al. In addition, Novick et al disclose a sequence that consists of SEQ ID NO:2 absent the first 85 nucleotides.

RESULT 1
US-09-485-632B-5
; Sequence 5, Application US/09485632B
; Patent No. 6605280
; GENERAL INFORMATION:

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; APPLICANT: No. 6605280ick, Daniela
; APPLICANT: Dinarello, Charles
; APPLICANT: Rubinstein, Menachem
; APPLICANT: Kim, Soo Hyun
; TITLE OF INVENTION: Interleukin-18 Binding Proteins, their Preparation and
; TITLE OF INVENTION: Use
; FILE REFERENCE: 20993-001
; CURRENT APPLICATION NUMBER: US/09/485,632B
; CURRENT FILING DATE: 2000-10-12
; PRIOR APPLICATION NUMBER: IL98/00379
; PRIOR FILING DATE: 1998-08-13
; PRIOR APPLICATION NUMBER: 125463
; PRIOR FILING DATE: 1998-07-22
; PRIOR APPLICATION NUMBER: 122134
; PRIOR FILING DATE: 1997-11-06
; PRIOR APPLICATION NUMBER: 121869
; PRIOR FILING DATE: 1997-09-29
; PRIOR APPLICATION NUMBER: 121639
; PRIOR FILING DATE: 1997-08-27
; PRIOR APPLICATION NUMBER: 121554
; PRIOR FILING DATE: 1997-08-14
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 5
; LENGTH: 7063
; TYPE: DNA
; ORGANISM: Homo sapiens
US-09-485-632B-5

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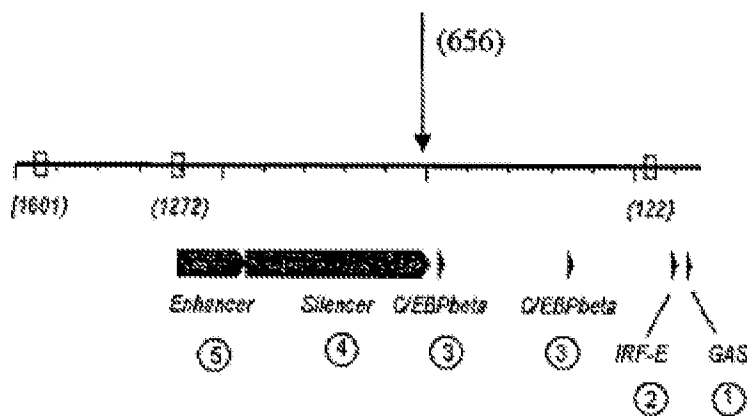
Query Match 86.1%; Score 545.8; DB 3; Length 7063;
Best Local Similarity 99.6%; Pred. No. 2.3e-163;
Matches 547; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy	86	GCCAGAGGGGCTAGGATGAGAGACAGAGGGTGTGATGGTGGGTGCTGGGAGATGTAGCCG145
Db	21	GCCAGAGGGGCTAGGATGAGAGACAGAGGGTGTGATGGTGGGTGCTGGGAAATGTACCCG 80
Qy	146	ACCTTGGGGCTGGTGGCTGGGGGAGTGGGTAGCCTGGGAAAGGCCAGGATGTGGACGGAC205
Db	81	ACCTTGGGGCTGGTGGCTGGGGGAGTGGGTAGCCTGGGAAAGGCCAGGATGTGGACGGAC140
Qy	206	TGGTATGGCATTGAGCCTGAAGTGGTCCAACCTGGGGTTCCCCAGTGCCTAGGAAAGTTG265
Db	141	TGGTATGGCATTGAGCCTGAAGTGGTCCAACCTGGGGTTCCCCAGTGCCTAGGAAAGTTG200
Qy	266	TCCCCTTGAATGTCAGTGTGAAGGTGAAGGAGGAAGCAGATGCCTGTTTCATATGGAACA325
Db	201	TCCCCTTGAATGTCAGTGTGAAGGTGAAGGAGGAAGCAGATGCCTGTTTCATATGGAACA260
Qy	326	AAGACCTGGCTGTGAAGAGGGGAGGCGGACACCAAAGTCCTGACACTTGGGCGGGACAGA385
Db	261	AAGACCTGGCTGTGAAGAGGGGAGGCGGACACCAAAGTCCTGACACTTGGGCGGGACAGA320

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Qy	386	ATTGATCTGTGAGAGACTCATCTAGTTCATACCCTAGGTGACCCTGGGGGTGGCATGGGG	445
Db	321	ATTGATCTGTGAGAGACTCATCTAGTTCATACCCTAGGTGACCCTGGGGGTGGCATGGGG	380
Qy	446	GTAGATTAGAGATCCCAGTCTGGTATCCTCTGGAGAGTAGGAGTCCCAGGAGCTGAAGGT	505
Db	381	GTAGATTAGAGATCCCAGTCTGGTATCCTCTGGAGAGTAGGAGTCCCAGGAGCTGAAGGT	440
Qy	506	TTCTGGCCACTGAACTTTGGCTAAAGCAGAGGTGTCACAGCTGCTCAAGATTCCCTGGTT	565
Db	441	TTCTGGCCACTGAACTTTGGCTAAAGCAGAGGTGTCACAGCTGCTCAAGATTCCCTGGTT	500
Qy	566	AAAAAGTGAAAGTGAAATAGAGGGTCGGGGCAGTGCTTTCCAGAAGGATTGCTCGGCAT	625
Db	501	AAAAAGTGAAAGTGAAATAGAGGGTCGGGGCAGTGCTTTCCAGAAGGATTGCTCGGCAT	560
Qy	626	CCTGCCCTT	634
Db	561	CCTGCCCTT	569

However, it is not clear given the details indicated as required for the functionality of the sequences



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2 and 35-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novick et al (see 6,605,280, however, the rejection date is based upon WO 99/09063 which specification is the same) in view of Hurgin et al, (2001) Journal of Interferon and Cytokine Research 24:S. 73. **This is a new rejection.**

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103 (a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The instant claims are drawn to a vector or isolated DNA sequence comprising SEQ ID NO:3 operably linked to SEQ ID NO:5. The teachings of Novick et al are as above except Novick et al do not teach that the fusion protein is luciferase.

Hurgin et al. teaches a 2 kb genomic sequence upstream of the human IL-18BP gene contains a promoter and enhancer element as determined by luciferase reporter vectors. Hence Hurgin et al teach that expression of luciferase can be mediated by the IL-18bp promoter which is present in the vectors of Novick et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use luciferase as taught by Hurgin et al as the fusion protein in the construct as taught by Novick et al . In *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007), the Supreme Court particularly emphasized “the need for caution in granting a patent based on a combination of elements found in the prior art,” (*Id.* At 1395) and discussed circumstances in which a patent might be determined to be obvious. Importantly, the Supreme Court reaffirmed principles based on it precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” (*Id.* At 1395.) In the instant case, it is well known the luciferase can be used to monitor and assess transfection, localization and success of expression of protein. As well, Hurgin et al teaches that it can be successfully expressed using the IL-18bp promoter as taught by Novick et al.

Thus, all of the elements of claims were known to one of ordinary skill in the art at the time the invention was made and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the

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time of invention. Therefore, the claimed invention, as a whole, would have been obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA B. MARVICH whose telephone number is (571)272-0774. The examiner can normally be reached on M-F (7:00-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach, PhD can be reached on (571)-272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Maria B Marvich, PhD
Primary Examiner
Art Unit 1633

/Maria B Marvich/
Primary Examiner, Art Unit 1633